



Weapons of Mass Destruction in the Middle East

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Israel

Weapons of Mass Destruction Capabilities and Programs¹

Updated: April 2006

Nuclear [2]	<ul style="list-style-type: none"> ● Sophisticated nuclear weapons program with an estimated 100-200 weapons, which can be delivered by ballistic missiles or aircraft. ● Nuclear arsenal may include thermonuclear weapons. ● IRR-2 40-150MW heavy water reactor and plutonium processing facility at Dimona, which are not under IAEA safeguards. ● IRR-1 5MW research reactor at Soreq, under IAEA safeguards. ● Not a signatory of the NPT; signed the CTBT on 9/25/96.
Chemical [3]	<ul style="list-style-type: none"> ● Active weapons program, but not believed to have deployed chemical warheads on ballistic missiles. ● Production capability for mustard and nerve agents. ● Signed the CWC on 1/13/93; has not yet ratified.
Biological [4]	<ul style="list-style-type: none"> ● Production capability and extensive research reportedly conducted at the Biological Research Institute in Ness Ziona. ● No publicly confirmed evidence of production. ● Not a signatory of the BTWC.
Ballistic missiles [5]	<ul style="list-style-type: none"> ● Approximately 50 Jericho-2 missiles with 1,500km range and 1,000kg payload, nuclear warheads may be stored in close proximity. ● Approximately 50-100 Jericho-1 missiles with 500-1,000km range and 500kg payload. ● MGM-52 Lance missiles with 130km range and 450kg payload. ● Shavit space launch vehicle (SLV) with 4,500km range and 150-250kg payload. ● Unconfirmed reports of Jericho-3 program under development using Shavit technologies, with a range up to 4,800km and 1,000kg payload. ● Developing LK-1 and LK-2 (Shavit upgrades) with 350kg and 800kg payloads, respectively.
Cruise missiles [6]	<ul style="list-style-type: none"> ● Gabriel-4 anti-ship cruise missile with 200km range and 500kg payload. ● Harpoon anti-ship cruise missile with 120km range and 220kg payload. ● Alleged Popeye Turbo air-launched cruise missile with 200-300km range and unknown payload.
Other delivery systems [7]	<ul style="list-style-type: none"> ● Fighter and ground-attack aircraft include: 25 F-15I, 6 F-15D, 18 F-15C, 2 F-15B, 36 F-15A, 52 F-16I, 54 F-16D, 76 F-16C, 8 F-16B, 67 F-16A, 50

- F-4E-2000, 20 F-4E, 5 Kfir C7 (in service), and 79 A-4N (in service).
- Ground systems include artillery and rocket launchers. Also, Popeye-3 land-attack air-launched missile with 350km range and 360kg payload, and Popeye-1 land-attack air-launched missile with 100km range and 395kg payload.

Unmanned Aerial Vehicles (UAVs) [8]

- Harpy lethal unmanned aerial vehicle (UAV) with 500km range and unknown payload.
- Delilah/STAR-1 UAV with 400km range and 50kg payload.
- Hunter UAV with 300km range and 114kg payload.
- Heron UAV with up to 1,000km range and 250kg payload.
- Hermes 450 UAV with 200km range and 150kg payload.
- Pioneer UAV with 185km range and approximately 15-25kg payload.
- Scout and Mastif UAVs with unknown ranges and payloads.
- Searcher UAV with 250km range and 100kg payload.
- Ranger UAV with 100-150km range and 45kg payload.
- Development of Skylark Mini-UAV with range of 10km and unknown payload.

Sources:

1. This chart summarizes data available from public sources. Precise assessment of a state's capabilities is difficult because most weapons of mass destruction (WMD) programs remain secret and cannot be verified independently.
2. Most public estimates range between 100-200 weapons (e.g., Amy Dockser Marcus, "Growing Dangers: U.S. Drive to Curb Doomsday Weapons In Mideast Is Faltering," *Wall Street Journal*, 9/6/96, p. A1), but one analyst concludes that "the Israeli nuclear arsenal contains as many as 400 deliverable nuclear and thermonuclear weapons." Harold Hough, "Could Israel's Nuclear Assets Survive A First Strike?" *Jane's Intelligence Review*, 9/97, p. 410. Israel's nuclear capability is by most accounts quite sophisticated, and may include "intercontinental-range, fractional-orbit-delivered thermonuclear weapons; thermonuclear or boosted nuclear-armed, two-stage, solid-fuel, intermediate-range ballistic missiles with a range of 3,000km; older, less accurate, nuclear-armed, theatre-range, solid-fuel ballistic missiles; air-deliverable, variable-yield, boosted nuclear bombs; artillery-delivered, enhanced-radiation, tactical weapons; and small nuclear demolition charges." Kenneth S. Brower, "A Propensity For Conflict: Potential Scenarios And Outcomes Of War In The Middle East," *Jane's Intelligence Review Special Report No. 14*, p. 15. See also: Anthony H. Cordesman, "Weapons of Mass Destruction in the Middle East: National Efforts, War Fighting Capabilities, Weapons Lethality, Terrorism, and Arms Control Implications" (Washington, DC: Center for Strategic and International Studies, 2/98), p. 19. "Nuclear Forces Guide," Federation of American Scientists, 10/10/97, [Online] <http://www.fas.org/nuke/guide/israel/facility/index.html>. International Atomic Energy Agency, "Situation on 31 December 1996 with respect to the conclusion of safeguards agreements between the Agency and non-nuclear-weapon States in connection with the NPT," [Online] <http://www.iaea.or.at/worldatom/program/safeguards/96tables/safenpt.html>. Nuclear Engineering International, *1998 World Nuclear Industry Handbook* (Essex, UK: Wilmington Publishing Ltd, 1998), p. 114. Cordesman, "Proliferation of Weapons of Mass Destruction in the Middle East: The Impact on the Regional Military Balance," CSIS (Working Draft), 3/25/05, p. 49, [Online] [http://www.csis.org/media/csis/pubs/050325_proliferation\[1\].pdf](http://www.csis.org/media/csis/pubs/050325_proliferation[1].pdf).
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5. "Missile and Space Launch Capabilities of Selected Countries," *The Nonproliferation Review*,

- forthcoming 1998. Duncan Lennox, ed., "Country Inventory – In Service," "In-Service Intermediate-Range Ballistic Missiles," "In Service Short-Range Ballistic Missiles," "Shavit," and "Offensive Weapons - Unclassified Projects, Israel," *Jane's Strategic Weapons Systems Issue 24*, 5/97. Cordesman, 1998, p.18. Cordesman, 2005, pp, 46-47. "Missile Master Table: Finland-Japan," Centre for Defence and International Security Studies, [Online] <http://www.cdiss.org/master2.htm>. Directorate of Space Programs, US Air Force Acquisitions, "Shavit," [Online] <http://www.safaq.af.hq.mil/ags/vehicle/shavit.htm>. Pierre Langereux, "Dassault Lifts the Lid on the Jericho Missile Story," *Air & Cosmos/Aviation International*, no. 1590, 12/6/96, p. 36. Shawn L. Twing, "Israel Seeks US Permission to Launch Rockets from NASA Facility in Virginia," *Washington Report On Middle East Affairs*, 4-5/97, pp. 29, 85. Tim Furniss, "Satellite Launcher Directory," *Flight International*, 12/10-16/97, pp. 28-34. Foreign Defense Assistance and Defense Export Organization (SIBAT), *Israel's Defense Sales Directory, 1997/98* (Tel Aviv: Ministry of Defense, 1997), p. 84. "Worldwide Ballistic Missile Inventories," Arms Control Association, 6/02, [Online] <http://www.armscontrol.org/pdf/missiles.pdf>. "Missile Capabilities," Nuclear Threat Initiative, 4/04, [Online] <http://www.nti.org/profiles/israel/missile/3564.html>. "Shavit," Israel Aircraft Industries, 2002, [Online] <http://www.iaai.co.il/Default.aspx?docID=15689&FolderID=14471&lang=en>.
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